

tainly have been much better if he had first given himself a little practice in the manipulation of acoustic instruments, before having treated so slightly the results obtained by Lissajous, by Despretz, by Helmholtz, by Mayer, etc., etc., and before seeking to throw discredit upon the labors of a *constructeur* who had no reason to expect so unjustifiable an attack.

In addition to Helmholtz's evidence, Professor A. M. Mayer has furnished the following statement concerning the absolute number of vibrations of König's forks. "During the months of March, April and May of 1876, I made many determinations of the number of vibrations of König's UT<sub>3</sub> fork and found that it gave 255.96 complete vibrations in one second at a temperature of 60° Fahr. The following are the separate determinations of that series of which the above number is the mean: (1) 255.95, (2) 255.97, (3) 255.90, (4) 255.92, (5) 256.02, (6) 256.02. The forks vibratory period is accelerated or diminished  $\frac{1}{22000}$  part by a difference of temperature of  $\pm 1^\circ$  Fahr."

26 Rue de Pontoise, Paris, June 5th, 1877.

*On a New Species of Adocidæ from the Tertiary of Georgia.*

By E. D. COPE.

(Read before the American Philosophical Society, July 20, 1877.)

Professor George Little, State Geologist of Georgia, placed in my hands for determination a Chelonite from a Tertiary formation in Macon Co. of that State. The matrix is a rather soft limestone of a light drab color. When the specimen was first obtained it was nearly perfect, lacking only the posterior part of one side, and the posterior border of the carapace. Having been mutilated by destructive curiosity hunters, there remain now the plastron and the anterior half of the carapace, with a considerable portion of the posterior part of the left margin. The surface has been exposed to the weather so as to obscure, and in some places to obliterate the dermal sutures, while the skeletal sutures are distinct. The form has been slightly distorted by lateral pressure, but not much.

The obscurity of the dermal sutures renders the determination of the generic affinities somewhat difficult. The skeleton preserves the Emydoid type, not exhibiting intersternal bones, and having a well developed mesosternum. The vertebral bones extend to between the sixth pair of costals, beyond which the specimen is imperfect in that region. The costal capitula are well developed, but whether they reach the vertebral centra, the specimen does not permit me to discover. The plastron is of peculiar form, the lobes being short and contracted. The anterior is rounded from a base of usual width, while the posterior, from a similar base, narrows rapidly to a point, as in the genus *Aromochelys*.

An important point is observed in the direction of the abdomino-pectoral

dermal suture. At its lateral extremities instead of continuing to the marginal scuta as in Emydoid genera, it turns forward and terminates at the inguinal notch, as in genera with intermarginal plates, as *Adocus* and *Dermatemys*. But the sutures of the intermarginals in the specimen are, if they ever existed, very obscure, owing to exposure to the weather. Nevertheless there is sufficient indication of them on one side, to render it tolerably safe to infer their existence. Anterior to the abdomino-pectoral suture, the border of the plastron is crossed by emarginations representing three scutal sutures, defining the humeral, gular, and intergular scuta. The courses of these sutures across the plastron are obscure. The humero-pectoral suture commences on the margin just in front of the axilla and extends forwards parallel with the border, becoming a deep open groove, which is apparent on both sides of the plastron. It then turns backwards, and appears to cross the plastron behind the mesosternum, presenting a concavity forwards. The next suture in front appears to cross near the middle of the mesosternal bone, presenting a strong concavity forwards. The relation between the intergulars and the gulars is difficult to discover. The suture between them at the free margin is distinct, but after proceeding inwards a short distance it appears to divide and take two directions. One depressed line extends backwards to the humero-gular suture, cutting off triangular gulars and extending the intergulars back to the humerals as in *Adocus*. The other depression extends directly across the anterior lobe, cutting off small intergulars as in *Baëna*. In either case the arrangement represents a genus distinct from either of those named. If the intergulars extend to the humerals they are double, the mesosternal region being divided by a distinct longitudinal dermal suture. If the intergulars are short, with the gulars in contact behind them, the arrangement is equally distinct from *Adocus*. From *Baëna* the absence of intersternal bones, and the Emydoid mesosternum distinguish it. It approaches also *Polythorax*,\* and may indeed belong to that genus. But it does not appear that the humerals and interhumeral bones are distinct in the Georgia turtle, and no intermarginals are observed in *Polythorax*. It is therefore necessary to give the present genus a name to be used until its relations to the latter are positively ascertained. I propose AMPHIEMYS for the genus, and A. OXYSTERNUM as the specific name.

*Specific characters.* The plastron is nearly plane in the transverse direction; longitudinally the posterior lobe is a little raised above the plane, and the anterior lobe rather more so.

The general form is elevated, the vertical diameter being large when compared with the longitudinal and transverse, which preserve usual proportions. The border of the carapace is not flared at the sides, and rises anteriorly to the nuchal bone. The free anterior margin is somewhat undulate. The anterior half of the carapace does not display any median or lateral keels.

The nuchal bone is considerably wider than long, and the costal and

\* Cope, Proceed. Acad. Philada. 1876. Nov.

marginal sutures are of about equal length. The vertebrals are all longer than wide, and of the usual form, with truncate antero-lateral angles, excepting the first. This one has both the sides and extremities convex, the latter being of subequal width. The costals are thick, and have parallel borders. The marginals are all higher than long, especially those of the bridge.

The sutures of the plastron are fine and straight. The portion of the mesosternum enclosed by the episternal or clavicular bones has greater longitudinal extent than the part embraced by the hyosternals. The sutures with the clavicular bone are nearly straight, and are parallel with the free border. The common suture of the hyosternals is a little longer than that of the hyposternals, and is a little shorter than that of the postabdominals. The anterior suture of the latter has a slight posterior obliquity, and is abruptly turned backwards at the free borders of the lobe.

The dermal sutures of the carapace are mostly obliterated. Enough remains to show that the second vertebral was wider than long, while the nuchal shield is considerably narrower than the nuchal bone. The marginal scuta are much narrower than the marginal bones, and become narrower forwards. The region of the nuchal marginal is obscure.

<i>Measurements.</i>	<i>M.</i>
Length of carapace to the posterior border of seventh costal.....	.250
Depth at third vertebral bone.....	.150
Length of second vertebral bone.....	.031
Width " " " ".....	.032
Thickness " " " ".....	.013
Length of first marginal ".....	.035
Width " " " ".....	.033
Length of first do. of the bridge.....	.028
Width " " " ".....	.060
Width of second costal.....	.033
Thickness of " ".....	.012
Greatest width of carapace.....	.182
Length of plastron (axial).....	.211
" " anterior lobe (axial).....	.073
" " posterior lobe ".....	.070
Width of base of anterior lobe.....	.115
" " " posterior ".....	.086
Length of bridge.....	.090
" " mesosternum.....	.042
Width " ".....	.046
Length of clavicle.....	.051
" " common suture of clavicles.....	.014
" " " " " hyosternals.....	.051
" " " " " hyposternals.....	.047
Width of postabdominals at anterior border.....	.057

The shell of this species is thicker than in any species of tortoise now living in North America, a peculiarity characteristic of most of the species of the Cretaceous period, and of many of those of the Eocene. Its size is about that of the *Pseudemys serrata*.